

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2024 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P646633

Luminaire Tested: S123DRP-S340D840-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2024
Report Number: P646633
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2301-905-1)
Test Lab: INNOVATION CENTER
Issue Date: 3/20/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123DRP-S340D840-X4F0-XX-UDD-G-W
Description: DEFINE 3 DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

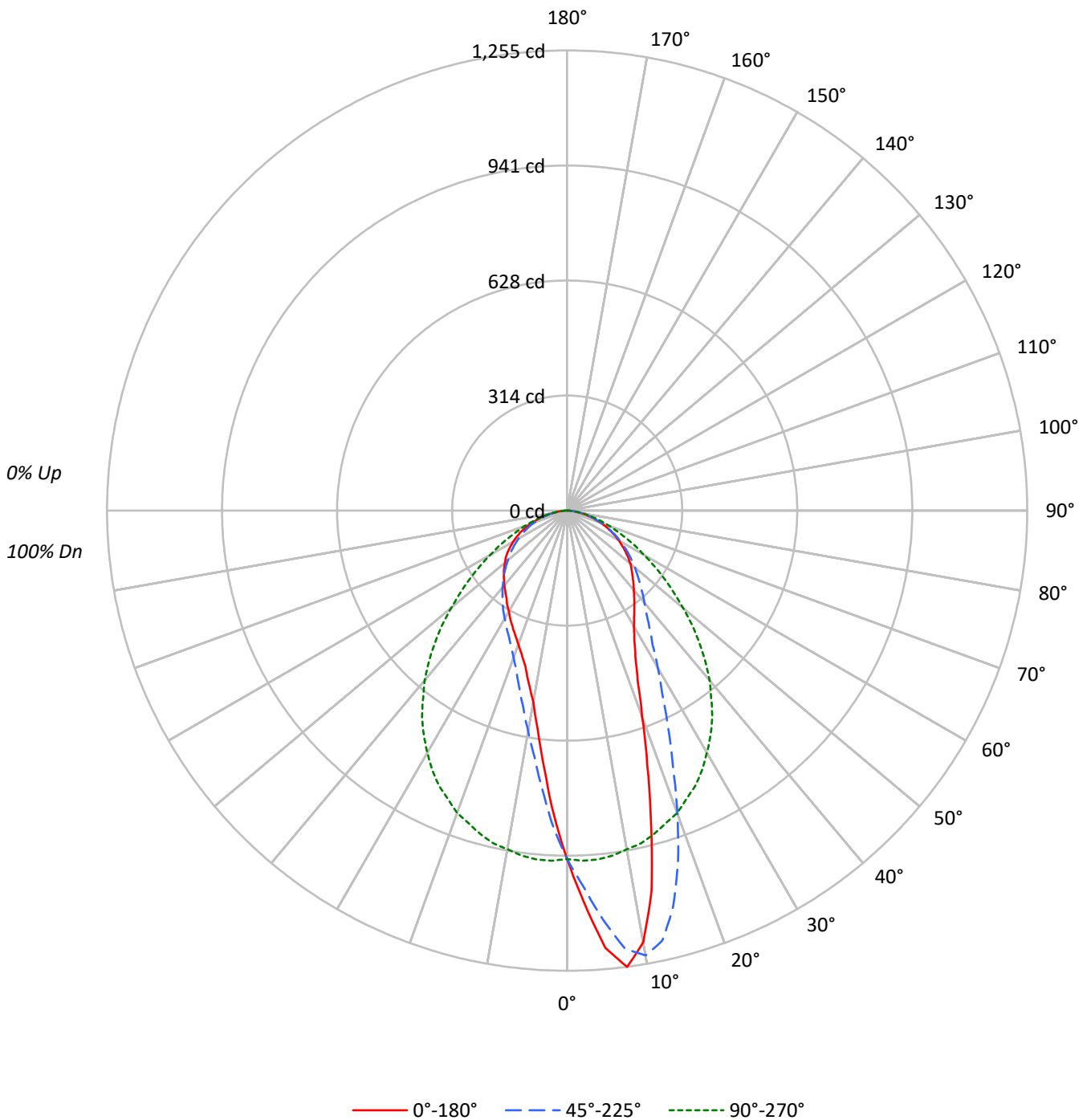
Lumens per Lamp: N/A
Luminaire Lumens: 1526.7 lumens
Efficiency: N/A
Efficacy: 128.3 lumens/watt
Spacing Criteria (0/90/45): 0.65 / 1.19 / 0.89
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

Input Watts (W): 11.9
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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Luminous Intensity Polar Plot



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					20					
RC	80					70					50					30					10					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88	86					86			
2	101	94	88	82	99	92	86	82	88	84	80	85	81	78	82	79	76	74					74			
3	93	84	76	70	91	82	75	70	79	73	69	77	72	67	74	70	66	64					64			
4	86	75	67	61	84	74	67	61	72	65	60	69	64	59	67	62	58	56					56			
5	80	68	60	54	78	67	59	54	65	58	53	63	57	52	61	56	52	50					50			
6	74	62	54	48	73	61	53	48	60	53	47	58	52	47	56	51	47	45					45			
7	70	57	49	43	68	56	49	43	55	48	43	53	47	43	52	47	42	40					40			
8	65	53	45	39	64	52	44	39	51	44	39	49	43	39	48	43	39	37					37			
9	61	49	41	36	60	48	41	36	47	40	36	46	40	36	45	40	35	34					34			
10	58	45	38	33	57	45	38	33	44	37	33	43	37	33	42	37	33	31					31			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	11449	11449	11449	11449	11449
5°	14479	13541	11552	9264	8555
10°	14620	15074	11475	7483	6485
15°	11011	13949	11396	6271	5484
20°	7672	11280	11252	5467	4982
25°	5850	8652	11003	5012	4672
30°	5062	6877	10607	4736	4423
35°	4695	5759	10151	4514	4248
40°	4445	5153	9508	4307	4189
45°	4298	4787	8694	4125	4163
50°	4223	4521	7729	3966	4141
55°	4067	4271	6781	3825	4159
60°	3921	4039	5844	3687	4092
65°	3684	3783	5041	3532	4011
70°	3403	3512	4287	3340	3773
75°	3077	3180	3673	3059	3450
80°	2540	2720	2907	2665	2907
85°	2018	2198	2129	2323	2323

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 9926 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	89.8	5.9
10°-20°	223.5	14.6
20°-30°	264.6	17.3
30°-40°	265.9	17.4
40°-50°	243.8	16.0
50°-60°	201.3	13.2
60°-70°	142.4	9.3
70°-80°	76.1	5.0
80°-90°	19.3	1.3
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	577.9	37.9
0°-40°	843.8	55.3
0°-60°	1288.9	84.4
0°-90°	1526.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1526.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	950	950	950	950	950	
5°	1197	1120	955	766	707	114
15°	883	1118	914	503	440	244
25°	440	651	828	377	351	208
35°	319	392	690	307	289	201
45°	252	281	510	242	244	195
55°	194	203	323	182	198	173
65°	129	133	177	124	141	128
75°	66	68	79	66	74	70
85°	15	16	15	17	17	17
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	10°	20°	22.5°	30°	40°	45°	50°	60°	67.5°	70°
0°	950.2	950.2	950.2	950.2	950.2	950.2	950.2	950.2	950.2	950.2	950.2
2.5°	1071.0	1068.8	1057.8	1050.7	1052.5	1036.6	1026.9	1019.0	1013.7	1000.9	994.3
5°	1197.1	1203.3	1196.2	1192.7	1174.6	1146.0	1119.5	1113.8	1089.1	1058.7	1048.1
7.5°	1255.3	1258.9	1254.5	1254.5	1248.7	1223.1	1204.6	1190.1	1147.7	1108.5	1090.4
10°	1194.9	1202.9	1220.1	1228.0	1239.5	1235.9	1232.0	1226.2	1197.6	1152.2	1131.4
12.5°	1062.2	1071.9	1106.3	1111.1	1150.4	1188.3	1200.7	1214.8	1217.4	1179.1	1156.6
15°	882.7	909.6	940.9	955.9	1005.8	1085.6	1118.2	1156.6	1202.0	1186.1	1168.5
17.5°	727.1	737.2	770.7	802.5	852.3	944.5	1004.9	1062.2	1159.6	1175.5	1164.5
20°	598.3	607.6	651.7	649.5	715.6	819.3	879.7	945.8	1089.5	1141.1	1138.9
22.5°	502.7	517.2	541.9	555.6	603.2	695.3	752.7	835.1	1009.7	1091.3	1100.1
25°	440.0	450.6	465.6	477.5	514.6	590.4	650.8	718.7	909.2	1026.0	1048.1
27.5°	397.3	401.7	416.7	423.7	448.4	513.7	560.4	622.6	816.2	952.9	983.7
30°	363.8	366.9	380.1	382.3	401.7	448.9	494.3	545.0	725.3	877.5	912.7
32.5°	340.4	342.6	352.7	353.6	368.2	402.6	434.3	481.9	639.4	796.8	840.4
35°	319.2	320.6	328.1	330.3	339.5	365.5	391.5	428.1	571.0	724.0	772.1
37.5°	300.7	302.5	306.9	309.5	317.0	337.8	355.4	385.8	505.3	648.2	701.5
40°	282.6	285.7	288.8	288.8	297.2	313.1	327.6	352.7	448.9	582.0	629.2
42.5°	267.2	270.3	271.6	272.1	276.5	291.0	303.4	320.6	406.1	523.4	569.7
45°	252.2	253.5	254.9	255.7	258.8	271.6	280.9	297.2	365.5	469.2	514.1
47.5°	238.5	238.5	239.4	240.7	243.0	252.2	260.1	272.1	330.7	420.6	457.7
50°	225.3	225.3	224.0	224.9	226.2	233.3	241.2	250.9	298.1	376.1	409.2
52.5°	209.4	209.4	209.9	208.6	209.9	216.1	222.2	231.9	270.3	335.1	363.3
55°	193.6	195.3	194.0	193.1	194.9	198.9	203.3	211.6	244.3	302.5	325.0
57.5°	177.7	178.6	178.1	179.5	178.6	182.1	186.1	191.8	220.9	265.9	287.0
60°	162.7	162.7	161.8	162.7	162.7	164.5	167.6	173.3	197.1	234.6	252.2
62.5°	145.9	146.4	146.8	146.4	145.9	148.2	150.8	154.8	176.4	204.2	217.4
65°	129.2	129.6	131.0	130.5	130.1	132.3	132.7	137.1	153.4	177.3	187.0
67.5°	114.2	113.3	113.8	114.6	115.1	115.5	116.4	120.8	132.3	151.7	159.6
70°	96.6	97.4	97.0	98.3	97.4	98.8	99.7	102.7	113.8	126.5	131.8
72.5°	80.7	81.1	81.1	82.5	82.0	83.3	84.2	85.5	93.5	104.9	107.1
75°	66.1	66.1	67.0	67.5	67.5	67.5	68.3	69.2	75.8	82.9	85.1
77.5°	50.3	52.5	52.0	52.5	52.9	54.2	53.4	55.1	59.1	63.1	64.4
80°	36.6	36.6	37.0	37.5	38.4	39.2	39.2	41.0	42.8	45.0	46.3
82.5°	23.4	23.8	25.1	25.6	26.0	27.3	27.3	27.3	29.5	30.4	30.4
85°	14.6	13.7	14.6	15.0	15.4	15.9	15.9	16.8	17.2	17.6	17.6
87.5°	7.1	7.1	7.1	7.1	7.5	7.5	7.5	7.5	7.9	7.9	7.9
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	80°	90°	100°	110°	112.5°	120°	130°	135°	140°	150°	157.5°
0°	950.2	950.2	950.2	950.2	950.2	950.2	950.2	950.2	950.2	950.2	950.2
2.5°	972.3	955.9	931.7	911.8	912.7	894.7	881.4	864.2	858.9	853.6	846.6
5°	992.5	955.1	904.8	864.7	852.3	822.3	784.4	765.9	754.9	735.5	728.0
7.5°	1017.7	948.9	872.2	809.6	795.9	746.1	701.1	679.0	658.3	644.6	627.9
10°	1034.0	937.9	839.1	756.2	743.0	686.1	627.4	611.6	585.6	568.8	552.9
12.5°	1046.3	929.5	805.1	708.6	687.0	631.9	572.8	551.2	532.2	508.0	496.5
15°	1057.4	913.6	770.3	658.8	636.3	576.7	522.1	502.7	485.5	464.3	454.2
17.5°	1053.4	894.2	731.9	614.7	592.2	533.5	481.1	459.0	447.5	429.0	422.0
20°	1048.5	877.5	695.8	572.8	548.1	493.4	442.3	426.4	414.9	403.0	396.8
22.5°	1033.1	851.0	659.2	534.4	511.0	456.4	412.7	399.5	390.7	382.3	377.0
25°	1007.1	827.6	623.5	496.0	477.5	426.4	389.3	377.0	371.3	362.9	358.0
27.5°	974.9	796.8	587.8	464.7	443.6	398.2	366.4	358.5	352.3	345.7	340.8
30°	934.3	762.4	552.9	434.3	414.9	374.8	347.5	340.4	334.7	328.1	322.3
32.5°	882.7	727.5	520.3	406.1	389.8	354.9	329.8	324.1	319.2	311.3	308.2
35°	825.0	690.1	488.1	379.2	363.8	333.3	312.6	306.9	302.0	295.4	292.8
37.5°	766.3	645.5	456.4	356.3	342.6	315.3	295.4	289.7	285.3	279.6	278.2
40°	704.2	604.5	425.1	332.9	321.0	297.6	278.2	273.8	269.4	265.9	265.0
42.5°	641.6	557.3	397.7	313.5	300.7	279.1	261.5	256.6	254.0	252.2	252.7
45°	582.5	510.2	369.5	291.0	282.2	262.4	246.0	242.1	239.9	238.5	240.3
47.5°	518.5	462.1	343.0	272.1	263.2	245.6	230.2	226.6	225.8	225.3	228.4
50°	462.1	412.3	314.4	252.7	245.2	227.1	214.7	211.6	210.8	212.1	216.5
52.5°	408.7	366.0	288.4	234.6	227.1	210.8	199.3	197.1	196.7	199.7	204.2
55°	355.8	322.8	260.1	214.7	207.2	193.1	184.3	182.1	181.7	187.8	191.8
57.5°	310.9	280.9	233.7	195.8	190.0	176.8	168.9	167.1	168.4	174.2	178.1
60°	266.8	242.5	209.4	175.5	171.1	159.6	153.4	153.0	154.3	160.9	164.9
62.5°	227.1	208.6	183.4	157.0	153.9	143.7	138.0	138.9	140.2	146.8	150.4
65°	193.1	176.8	157.9	138.5	134.5	127.4	123.5	123.9	126.5	132.3	135.8
67.5°	160.1	146.8	136.2	120.8	117.7	111.6	108.5	110.2	111.6	117.3	120.8
70°	132.3	121.7	113.8	102.3	100.1	94.8	92.6	94.8	96.1	101.0	105.4
72.5°	106.3	99.7	93.5	85.1	82.9	79.4	78.9	79.8	82.0	86.9	88.6
75°	82.5	78.9	73.6	68.3	67.0	65.3	64.8	65.7	67.9	70.5	72.3
77.5°	62.6	59.5	55.6	53.4	51.6	50.7	51.1	52.5	53.4	56.0	57.3
80°	45.4	41.9	41.0	37.9	37.5	37.0	37.9	38.4	39.7	41.4	42.3
82.5°	30.0	27.3	26.5	26.0	25.6	25.1	26.5	26.9	27.8	29.1	29.5
85°	16.3	15.4	15.4	15.0	15.4	16.3	16.3	16.8	16.8	17.2	16.8
87.5°	7.5	6.6	7.1	7.1	7.1	7.5	7.5	7.9	7.9	7.9	7.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	160°	170°	180°
0°	950.2	950.2	950.2
2.5°	846.1	843.1	830.7
5°	721.4	710.8	707.3
7.5°	626.1	625.2	606.7
10°	545.4	546.8	530.0
12.5°	494.7	483.7	482.4
15°	451.5	441.4	439.6
17.5°	419.3	413.2	411.4
20°	395.1	391.5	388.5
22.5°	375.7	371.3	368.6
25°	356.3	352.3	351.4
27.5°	339.5	334.7	334.7
30°	322.3	319.2	317.9
32.5°	306.9	304.2	304.2
35°	291.9	290.6	288.8
37.5°	278.2	278.2	277.3
40°	265.0	266.3	266.3
42.5°	253.5	254.9	254.9
45°	241.2	243.4	244.3
47.5°	228.8	232.4	233.3
50°	217.8	220.5	220.9
52.5°	205.9	209.0	211.2
55°	193.6	196.7	198.0
57.5°	180.3	183.4	183.9
60°	165.8	168.9	169.8
62.5°	152.6	154.3	155.2
65°	136.2	138.9	140.7
67.5°	121.3	123.5	123.5
70°	104.9	105.8	107.1
72.5°	89.5	90.0	90.0
75°	72.8	73.6	74.1
77.5°	57.3	57.8	57.8
80°	42.3	41.9	41.9
82.5°	29.5	28.2	28.2
85°	16.8	16.3	16.8
87.5°	7.5	7.5	7.5
90°	0.0	0.0	0.0



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CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	15.96	17.47	16.32	17.78	18.10	18.41	19.92	18.78	20.23	20.55
	3H	17.65	19.01	18.03	19.33	19.70	19.63	20.98	20.00	21.31	21.67
	4H	18.25	19.52	18.65	19.87	20.25	20.05	21.32	20.45	21.67	22.05
	6H	18.66	19.83	19.07	20.20	20.59	20.32	21.50	20.73	21.86	22.25
	8H	18.76	19.88	19.19	20.27	20.67	20.39	21.51	20.82	21.90	22.30
	12H	18.82	19.89	19.25	20.27	20.70	20.42	21.49	20.85	21.88	22.31
4H	2H	16.61	17.88	17.01	18.23	18.61	18.63	19.91	19.03	20.25	20.63
	3H	18.49	19.55	18.90	19.95	20.35	20.12	21.17	20.53	21.57	21.98
	4H	19.21	20.17	19.64	20.58	21.02	20.68	21.63	21.11	22.05	22.49
	6H	19.72	20.55	20.18	21.00	21.46	21.08	21.91	21.53	22.35	22.81
	8H	19.86	20.64	20.32	21.08	21.55	21.18	21.96	21.64	22.40	22.87
	12H	19.95	20.64	20.43	21.12	21.59	21.25	21.94	21.73	22.42	22.89
8H	4H	19.54	20.31	20.00	20.76	21.22	20.85	21.62	21.31	22.07	22.53
	6H	20.15	20.79	20.65	21.28	21.76	21.34	21.98	21.84	22.47	22.95
	8H	20.35	20.92	20.86	21.43	21.92	21.50	22.07	22.02	22.58	23.07
	12H	20.49	21.00	21.00	21.49	22.06	21.62	22.13	22.13	22.62	23.18
12H	4H	19.57	20.26	20.05	20.74	21.21	20.85	21.54	21.33	22.02	22.49
	6H	20.20	20.78	20.72	21.29	21.78	21.36	21.93	21.87	22.44	22.93
	8H	20.45	20.96	20.96	21.45	22.02	21.57	22.07	22.08	22.57	23.13